

From Virtual Communities to Learning & Technology:

A Journey in HCI (Version 2.0)

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We know the rules of community; we know the healing effect of community in terms of individual lives. If we could somehow find a way across the bridge of our knowledge, would not these same rules have a healing effect upon our world?

M. Scott Peck (Rheingold, 2000)

I had the great fortune to begin my collegiate (undergraduate) studies as a student of Loyola Marymount theologian, Herbert J. Ryan, S.J. Father Ryan impressed upon his students that in our papers, because we were undergraduate students, we weren't expected to answer the "Great Questions of Theology," but to research, investigate and reflect upon our chosen topic. At the end of the process we were to produce a journal recording where our investigations had led us and conclude with a single statement as to the direction our paper would take if we were to write a paper. Part of his objective in framing his writing assignments this way was to minimize students ram-rodging insufficient data with overly grandiose conclusions. It also put the primary emphasis on the students' interaction with material, again minimizing a first year student propensity toward overstating one's position. I've experimented with this research journal process with limited success with elementary students and look forward toward possible uses of the technique once I begin working with university level students.

Beyond having wistful memories regarding the wisdom of one of my former professors, I bring up this process because I will be partially employing it in the course of this paper. Part of my use of this method comes from the fact that I am three months removed from the original deadlines for this paper and six months removed from where I was when I originally began to interact with the course material. Thus over the course of this paper I will outline and comment on journey of the past half year and on elements of Human/Computer Interaction as it pertains to technology & learning.

Human/Computer Interface

Overview of the HCI Journey

How many times has Time Magazine named the computer or a computer-related personality "Man of the Year?" (Answer: 4)(2006). That technology is part of the current North American experience is no great surprise. That educational technology tends to lag as much as twenty-years behind the current curve may or may not be more surprising (depending on how long it's been since one has been in a typical American public school classroom). With Apple Computer silently celebrating their 30th anniversary on April 1st they may be happy to learn that their first world-record breaking creation, the Apple II, is still finding gainful employment in classrooms all across America.

In HCI Version 1 Professor Spark sought to encourage us to look beyond the twenty-year lag, to interact and experiment with mostly Internet-based tools that could revolutionize our experience with technology. Thus many of us made our first tentative forays into web-page design and even a few of us looked at various available tools like [Moodle](#) and [Geeklog](#). Several [mock-up pages](#) were created to illustrate what a possible Internet-based student-centered portal might look like. Interestingly, my school is currently piloting a web-product, [SchoolLoop](#), which looks and acts almost exactly like the mock-ups that we created a year ago. In relation to our own design efforts we looked at an area where HCI tends to breakdown, the area of usability. We were made aware that this breakdown tends to happen because the technologists and engineers who design the products do not think or interact with technology in the same way as the non-engineer audience their products are meant for.(Cooper, 2004)

Having experimented with web-design in my prior OMAET experience, followed by creating and maintaining my former school's webpage and my own collection of personal blogs

for the past two-years, that part of HCI was a refresher course. What was frustrating was that the deeper applications such as Geeklog, Moodle and PHP were difficult to get to because of the work load and time limitations. Even in the past three months, when I've been away from Pepperdine, it's been difficult to get into anything deeper than an embarrassing few blog entries. Six-weeks ago I had our Cadre X web-wizard, Ms. Sartori, create a Geeklog-based website for me called [JBB's Desktop](#), but I haven't gotten much into it beyond creating the logo and title marker. Similarly I wonder how many of the web sites that were envisioned and created during HCI 1 are still being used at all. This does lead to the first HCI-related question, if we who are serious enough about educational technology to be pursuing an advanced degree in the subject are unable to find the time to readily use these fantastic tools what's the journeyman educator, who just wants to get something done, going to do?

HCI Version II took us in a different direction, from cyberspace to [Second Life](#). As with many sequels, HCI II upped the ante and took what might be typified as a casual dilettante look at web-tools in HCI I and got in our faces in HCI II, echoing the cry of every kid in America, "why can't education be as fun as the games we play on the computer at home?" More to the point, is it possible to educate kids using computer games? Some of us just struggled to get Second Life running and/or found the experience to be completely unrelated to our day jobs as educators. This theme of "relatedness" will come up several times between the various worlds and participants.

Virtual Communities

Spending an evening on the World Wide Web is much like sitting down to a dinner of Cheetos, two hours later your fingers are yellow and you're no longer hungry, but you haven't been nourished.

Clifford Stoll (Stoll, 2006b)

Beginning during HCI I and up to the first weeks of HCI II, my take on HCI and how I

wanted to use technology was as a tool to connect teachers, particularly site technology specialists who often are the most isolated teachers because no one else on-site shares in their workload or the kinds of problems they face. The OMAET experience had been so powerful to me that I saw the need for communities everywhere, especially in terms of task-specific communities of practice. Site tech specialists generally are at least as impacted as general classroom teachers when it comes to a lack of availability for the endless meetings needed to create and sustain a community of practice. Thus I thought that the creation of a virtual community would fill this need. I had briefly created a small group of tech coordinators during the OMAET program but, at the time, there was no virtual component and the lack of time got to be enough for the group to disband as quickly as it had sprung up.

Reputation Systems in Cyberspace

The Internet is a telephone system that's gotten uppity.
Clifford Stoll (Stoll, 2006a)

During HCI I my study group read Howard Rheingold's "Smart Mobs" (2002) and one of the chapters that I covered was the one on [Reputation Management](#) in online communities. It seemed like a matter of fact concept that the strength of a given community was dependent on the veracity of the group and related trust between group members and within the group as a whole. The difficulty for online or virtual communities is that they lack the "look me in the eye and tell me the truth" accountability and in fact, are often considered attractive because of the anonymous nature of group membership. How does one balance the need for anonymity and the need to for there to be trust if the group/community is to serve a purpose. In the early listserve/newsgroup days with it's infamous "flame wars" it was just a matter of course to expect bad behavior on the part of some of the users. Something changed between those days and the rise of [e-Bay](#), [Amazon](#) & [Craig's List](#).

At its lowest level your user account began to mean something. In the "flame war" days having a recognizable handle was cool, especially when flaming a noob for a stupid post, but the account was largely disposable. When the vendors moved in, however, especially if the individual user was the vendor, your user account needed to carry some level of veracity and trust. It began to mean something. Thus the large commercial virtual communities began to create mechanisms that would reward users' good behavior and shun poor conduct. Simply put, without a working reputation system, sites like e-Bay or Craig's List would collapse because no one would want to trust that they were getting what they're paying for or that the payment they would get would be valid after they shipped their product. The whole web economy requires some reputation system, and so it was.

Rheingold noted in his blog:

Today's online reputation systems are computer-based technologies that make it possible to manipulate in new and powerful ways an old and essential human trait. Note the rise of web sites like eBay (auctions), Epinions (consumer advice), Amazon (books, CDs, electronics), Slashdot (conversation) and Plastic (publishing and conversation), built around the contributions of millions of customers, enhanced by reputation systems that police the quality of the content and transactions exchanged through the sites. In each of these businesses, the consumers are also the producers of what they consume, the value of the market increases as more people use it, and the aggregate opinions of the users provides the measure of trust necessary for transactions and markets to flourish in cyberspace. (Rheingold, 2006)

Authority Figures, Pooled Ignorance, Suggestion Systems & A9

I grew up going to the Encyclopedia Britannica when I needed a question answered and I trusted authority figures with prestigious university credential attached to their names. In the early 80s I attended computer user group meetings and in my small SIG (special interest group) meetings I was continually amazed at how freely these hobbyists shared their misinformation. Our SIG was centered around the Kaypro computer and the vendor was in the process of going

belly-up, thus information was not readily available. And even though I hadn't been working with small computers for very long I could see that our little meetings were little more than the excuse for this group to pool their ignorance. That became my understanding about group think, that unless someone is a real authority with real experience in the field under investigation, getting a lot of ignorant or uninformed minds together did not improve the level of understanding of the group. So how does one balance that experience with things like [Wikipedia](#) or Collective Intelligence?

Why trust strangers on the Internet when I couldn't trust a bunch of geeks meeting at Chapman University whom I met on a monthly basis? Logically it's not simply a matter of there being more "contributors," but that the Internet greatly increased the possible participation by a wide range of real authorities, thus the value of the discussion and its validity has the potential to rise significantly. It's not necessarily how many, but whom, that makes Collective Intelligence work. It has not been without it's own problems, however, as Wikipedia has experience numerous times with such posting controversies as former MTV personality, Adam Curry, and his role in the creation of podcasting.(Wikipedia, 2006a) But CI proponents such as Tom Atlee, Michael Dubois and George Por would have us to believe that CI represents the next step in human evolution.(Wikipedia, 2006b; Wikipedia, 2006c; Atlee, 1993; Dubois, 2006; Por, 2006) Por described CI as, "the capacity of a human community to evolve toward higher order complexity thought, problem-solving and integration through collaboration and innovation."(Por, 2006).

Tom Atlee, in his book *The Tao of Democracy* (2006), sees CI as more than an academic experiment. He wrote, "I want to explore how we might use the perspective of co-intelligence to transform our troubled democracy into a living system capable of creating a world that works for

all, by generating the collective wisdom we need to creatively address our twenty-first century problems, opportunities and dreams."(Atlee, 2006) Atlee's vision of global change aside, CI supporters such as tech journalist [Leo Laporte](#) has had to pull down his own wiki because he was unable to control spam and too many users demonstrating bad net-etiquette. Thus, it just feels like it's too early for CI to declare victory.

And where some might see visions of future global human interaction, others just see a good way to find cool DVDs and books. To that end various web endeavors such as [Amazon.com](#), [Slash.Dot](#), and [e-pinions](#), have combined various technologies with user recommendations to create recommendation systems. Beyond being an "interesting" value-added feature, some web services such as [Pandora Music](#), have made it a central feature of their service to recommend additional music the user might be interested in, for example, based on information the user shares with the service about the user's collection and/or tastes in music. All of this is based on mountains of data services have collected and analyzed and pulled together to create profiles some might guess to better serve the user. Others might guess it's to better target resources and create a more efficient business practice. Either way, except for those of us pursuing advanced degrees in technology, the common user is more likely to just be pleased to find the DVD they're looking for at a reasonable price and completely ignore the recommendation systems. Well, the possible exception to this would be those times when the user is looking for a book, CD or DVD for a family member and can't begin to guess what the family member might like. Amazing that all of this technology has been harnessed to replace our "wish-lists" of old.

Gaming & The "Game"

Sci-fi author Jerry Pournelle once described listening to a user complaining about the

difficulties and challenges the user was experiencing with his text-based adventure game.

Pournelle commented that it sounded exactly like the frustrations one might expect using the then state-of-the-art command-line based computer operating system (MS-DOS). (Pournelle, 2006) To extend Pournelle's observation, it might be noted that in every area of human endeavor there are elements of it all being "just a game." Many of us may or may not have gotten that during HCI II.

I, for one, am not a gamer and in the twenty-two years that I've had personal computers in my life I can probably count the number of times I've sat down and attempted to play a computer game, especially RPGs, FPSs, MMRPGs, or any game that had a plot and/or required learning anything. Of course in the early days I had an unfortunate habit of buying games that I'd play maybe once including such text-based adventure games classics as Infocom's "Planetfall" or "Bureaucracy." Eventually I learned how to resist the temptation to purchase a piece of software that I had no real intension of using. Yes, I've played solitaire, tetris, or monopoly numerous times, but I don't count those games because they required no mental effort on my part and I used them largely as a brainless way to waste time. So, for whatever reason I've never really experienced nor felt the need to experience the near nirvana of leveling up or mastering a particularly difficult level in a game.

That said, I completely understand that one of the major engines that drives the current computer hardware industry is gaming. That is, the demands of any number of productivity tools are not going to put any kind of hurt on virtually any of the computer platforms being currently offered (Microsoft's fabled ability to sell bloated software with dozens of "features" that no one is asking for, notwithstanding). Thus, I understand that our HCI II exposure to the prospects of gaming is at least as much a part about getting past public education's 20-year lag to see the

possibilities that computer technology might hold in the future (and the fact that a certain professor has been known to stay up all night playing Zoombini's or WoW). Add to that, one cannot begin to appreciate how a majority of our students interact and understand computer technology in their lives without immersing oneself in the world of computer games.

Homicidal Hit-man Flash Games Beat Daily Teacher Monologues

Thus for the past several months I've been opening my middle school computer lab at lunch at least once a week to 6th to 8th grade students. It's really brought home to me why so much of a student's "educational day" is so mind-numbingly boring. Even the low-tech flash-based games with cheap animation pulls them in so much more than whatever we teachers tend to offer (with our non-visual monologues that requires almost no REAL interaction... boys and girls, eye-contact is not interaction!). Also, alas for the most part there only tends to be one group of maybe four girls for every herd of twenty males who visit the lab. The girls during lunch almost exclusively visit music or MySpace-esque sites. But when the girls in my 7th grade computer class were given free time they generally also go to the flash-based websites (though rarely to the same FPS sites that the boys flock to) (Bustillos, 2006).

Now, it might be because my students represent a specific lower SES segment of the population where most of them do not have computers at home, and their exposure to the latest PlayStation/X-Box console gaming rig only a little more likely, but I've observed that they'll spend their free time playing antiquated side-scroller adventures with primitive 2-D graphics where their main complaint is the district's firewall and about our antiquated hardware's slow load times. Interactivity seems to be much more important than any measure of graphic "realism." It also seems to help a bit if the game's plot carries with it some taboo element that would generally be considered completely inappropriate for a public school setting (as is found

in the violent hitman story illustrated with South Park-esque characters, [Ray](#)). So, it's not so much about it all being this graphical wonder but more about meaningful interactivity with a well-balanced pay-off for ones efforts and it helps that the subject matter is generally considered too grown up or "gritty" for them. Heck, they'll play a [stick-figure bow and arrow game](#) if the payoff is that they can put their arrow through the eye of their opponent as a means of winning the game. Then there are those who will play a classroom simulation if the plot of the game is to cheat and get one over on the stupid teachers (see "[classroom](#)" and "[classroom 2](#)")

I'd be very interesting to see what sorts of numbers can be collected on how students learn in terms of the real "knowledge acquisition" because, while they're failing math, science, history and lit., they're learning how to hack around the district firewalls, how to master any collection of unintuitive firing controls for tons of FPS games and the value of getting someone to stare at a computer screen intensely enough to scare the crap out of them when flashing a scary picture of a possessed Linda Blair on the screen. So it's not about their capacity to learn as much as perceived relevancy and our failure to really implement systems of learning that having anything to do with genuine interaction with the subject matter.

Technology & Learning

The Failure of the Industrial Model in the Technological Age

So I began this journey feeling like the answer to the question of tech integration was to support and connect tech specialists using virtual communities. I felt that a better supported tech staff would better enable classroom teachers to move further forward in their usage of technology and all of this would have a watershed effect on student usage of technology as a common every day part of their education. I still believe that teachers (specialists and classroom) are better served when their tech training and support is offered in a "cadre"/community model

versus letting the tech pioneers wander into the great unknown only to be individually picked off by the anti-tech forces who are stuck in the Industrial Age/factory model of education (Bustillos, 2005). But my own failure to find the time or means to create such a virtual community and my new experiences working at the middle school level leads me to believe that the problem is more systemic than giving technologists a useful means of social and job related interaction. There's something that seems to be wrong with the whole basis of tech training or education, for that matter, in isolation.

I knew this when I took my reading/literacy methods courses as part of my teacher training at Chapman University over ten years ago. We humans learn best when we not only retain whatever data that was part of the learning objective, but when we also become fluent in acquiring the data for ourselves and interacting with the data in a way that pushes the data from rote information to understood knowledge that is connect to the rest of our understanding. Unfortunately, what I have let pass as tech education has not been delivered in a manner that left much room for understanding and almost no connections outside of the specific sequential flow of the "lesson." This fact was brought to me in black and white when I tested my 6th grade students on basic spreadsheet terms and usage following working with them for several weeks on an introductory unit and two spreadsheet projects.

Basically after all of this time and effort my students proved to be proficient at following single step-by-step sequential instruction ("Now, everyone click in 'E4'," pause, "now type the formula '=SUM9C4+D4)('"), but were unable to answer the question, "spreadsheets contain their data in ____?" (answer: cells). As much as I had literally given them the information verbatim in their introductory unit, we never interacted with that information in any more of a meaningful way except to have them write the word "cells" on the line provided in their booklet.

Little wonder that they had no recall to that little fundamental fact of spreadsheet lore. And except for a very small group of overachievers who would have scored high even if the test were in Greek, I had to admit that there was something amiss when almost whole classes score solid "F"s on a test that should have been easy. The real failure, however, was in succumbing to the need to get through these units with no time built in for understanding, practice or next steps. Granted we are talking about spreadsheets and sixth graders so their passion for the subject is not going to be a natural fit.

I'd previously prided myself in being able to create charts in Excel and PowerPoint presentations with first graders, knowing that it was all just a matter of breaking the tasks down into very small steps, forgetting that they would have almost no way to do the tasks for themselves. The parents and teachers were duly impressed. But if the real objective of the lessons/units was for my students to become proficient with these tools than the exercises were in fact a failure, a failure with pretty charts and slides, but a failure nonetheless. It felt like another case of American education being a mile wide and less than an inch deep.

For my part, I now realize that I have to build my units with adequate structure with highly identifiable grouped tasks and plenty of follow-up units that require the students to rearrange the learning building-blocks, as if were. The data is meaningless unless it is transferable to tasks outside the initial lesson's sequential structure. Given how expensive it is to fund a technology program, it is not enough to have colorful pie charts and open house powerpoint presentations without bringing the students to the point of making these tools their own, to be used outside of the rote sequential initial process.

A Sword & Not a Plowshear

I never thought twice about using technology as part of my normal every day classroom

experience. Having come to education from an unrelated field I was not conditioned to "stay within the lines" when it came to addressing the needs of my students and how technology might be used to improve the situation. I was fortunate enough to have begun this journey at a time when there was still enough time in the teaching week to experiment with using videos and "Age of Empires" when the social studies textbook proved to be unusable to my second language learners. The political climate and freedom for teachers to teach has decidedly changed since those days. And as much as I believe that there's no real reason that schools should ever have to choose between having a technology program and properly funding the classrooms, in that I'm at my third school site since 2001 teaching technology this opinion has obviously failed the majority test. Thus, it is my belief that Technology, because of its expense, is going to become a political cauldron where one's real educational philosophy and practices will be revealed. The demands on the teaching week and lack of adequate funding makes the previous policy of throwing money at failing schools seem laughable if not obscene.

I was part of a school site whose consistent low test scores in the latter half of the 1990's was enough to make the school a good candidate for additional Federal funding through the magnet school program. Because of my experience using video and computer technology in my 6th grade classroom I was tasked with creating a budget and then implementing the program that, over the course of three years, poured approximately \$400,000 per year into a communications and technology program. In that time three to five new computers were put in each classroom, a network server for the school site, a new 32-station computer lab and a three-camera video studio with green screen and real-time onscreen graphics were created, and two full-time specialist positions were funded (my technology position and another teacher to coordinate curriculum). Additionally the district needed to come up with additional funds to

provide two new portable structures to house the new computer lab and video, site electrical upgrade and general site beautification. E-rate money was used to install cable, fiber-optics and cabinets to house the video and computer network switches.

By the third year we had a pretty spectacular program. The lower grades got opportunities to have their plays, presentations and classroom projects video-taped and featured on the school-wide news broadcast. The fifth and sixth graders were able to write, interview, video tape, edit and present their stories on the school-wide news broadcast. It was unlikely that these students would work with this level and concentration of professional video equipment until they might get to the level of a university with a well-funded communications department. It was an amazing experience breaking new ground on a regular basis and seeing these students become proficient handling several thousand-dollar equipment. It was a great experience that unfortunately did not translate into higher school-wide test scores.

I was not brought back for what would have been the fourth year and the curriculum coordinator switched business cards and became the coordinator for the new school-wide reading grant that was foisted upon the school. During the two-year follow-up to the Magnet Program the test scores continued to drop. At one point the school received a discommendation by name by the state superintendent when he called the school one of the "lowest of lows." (Bustillos, 2001) While probably not as dramatic as my experience, I have interacted with enough former coordinators of school-wide grants to know that the experience was not entirely unique. None too surprisingly, my current school district, one of the largest in the state of California, has decided to close it's Magnet office and let the current schools in the funding cycle run their course and then go away.

Next Steps

"I would recommend that we put the unit back in operation and let it fail, it should then be a simple matter to track down the cause."

Hal9000 - 2001: A Space Odyssey

Even if the money were available, throwing more money at dysfunctional schools and school systems is akin to expecting my small SIG to gain in understanding by pumping up the numbers by a couple dozen. So, it isn't necessarily about resources, it isn't about the availability of training, and it even isn't about barriers to communities of practice. The sad thing is that a lot of money is going toward all of these areas in no particularly cohesive fashion and the American public is getting what they've paid for: nothing.

East Coast Educational technologist and podcaster, Jeff Moore, recently commented that schools with a traditional industrial model of instruction with separate classes for math and science, etc. are not going to be able to contend with the emergence of web-based social networking services such as MySpace. His point is that if the school and it's teachers are not using wikis or moodle or other social networking tools to manage instruction, update and communicate curriculum than they are not going to be able to point to the use of tools like myspace in a way that might be educationally beneficial. He agrees that schools using the traditional model had better block myspace from their networks because that model of social networking doesn't fit the basic educational philosophy of the school.(Moore, 2006) My observation is that this is another area where education is out of step with the progress or at least the direction that society is taking. And our students are quite aware of this.

It seems pretty clear to me that we're living in a technological age and those readily equipped to move into that age are going to be the ones to shape what comes next. I believe that new models of community based schooling are going to emerge for a society that is ready to do something more with its educational system beyond warehousing students five days of the week,

180 days of the year. I believe for education it is a mistake to make technology the focus and that the focus should be on understanding the process of learning more and harnessing technology to better move from theory to best practices. Right now we are in an environment that is fixated on distilling education down to a numerical ranking system that has no proven relationship to success outside of the self-contained ranking system. This system doesn't even address the concern whether our students would be able to compete in a world market, except, of course, if the competition were in test taking skills (and even the outcome is not entirely clear). My focus is to better understand learning and to use technology to create the structures needed to best support learning. I have understood since my OMAET days that if my students are successful, regardless of the measure employed by those fixated on numerical ranking, than I am more free to pick the path to that success than going in directions that I know will only work in a minimal fashion. As I wrote in for the title of my first OMAET project:

Rien ne réussit comme le succès - Dumas

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